



Commercial space technology for the NASA mission

Shanti Rao & Ian Ferguson
Jet Propulsion Laboratory
California Institute of Technology



Jet Propulsion Laboratory
California Institute of Technology

© 2017 California Institute of Technology.
Government sponsorship acknowledged.

How can your parts get onto a JPL mission?

- Consider a recent proposal for NASA EVM-2 (that didn't win)
- 90% component reuse, most with flight heritage, when the AO is issued

Spaceborne Atmospheric Boundary Layer Explorer



- 2+ years from draft AO to start of work
- 5+ years to launch
- Most vendors will need a stable, non-NASA business base

Race to the bottom in entrepreneurial space

- Cubesats and smallsats are clearly not just hype
- Prices are dropping and volume is increasing
- Is the industrial base sustainable?
 - What will today's smallsat integrators be doing in 5 years?

Entrepreneurs are revolutionizing the space marketplace

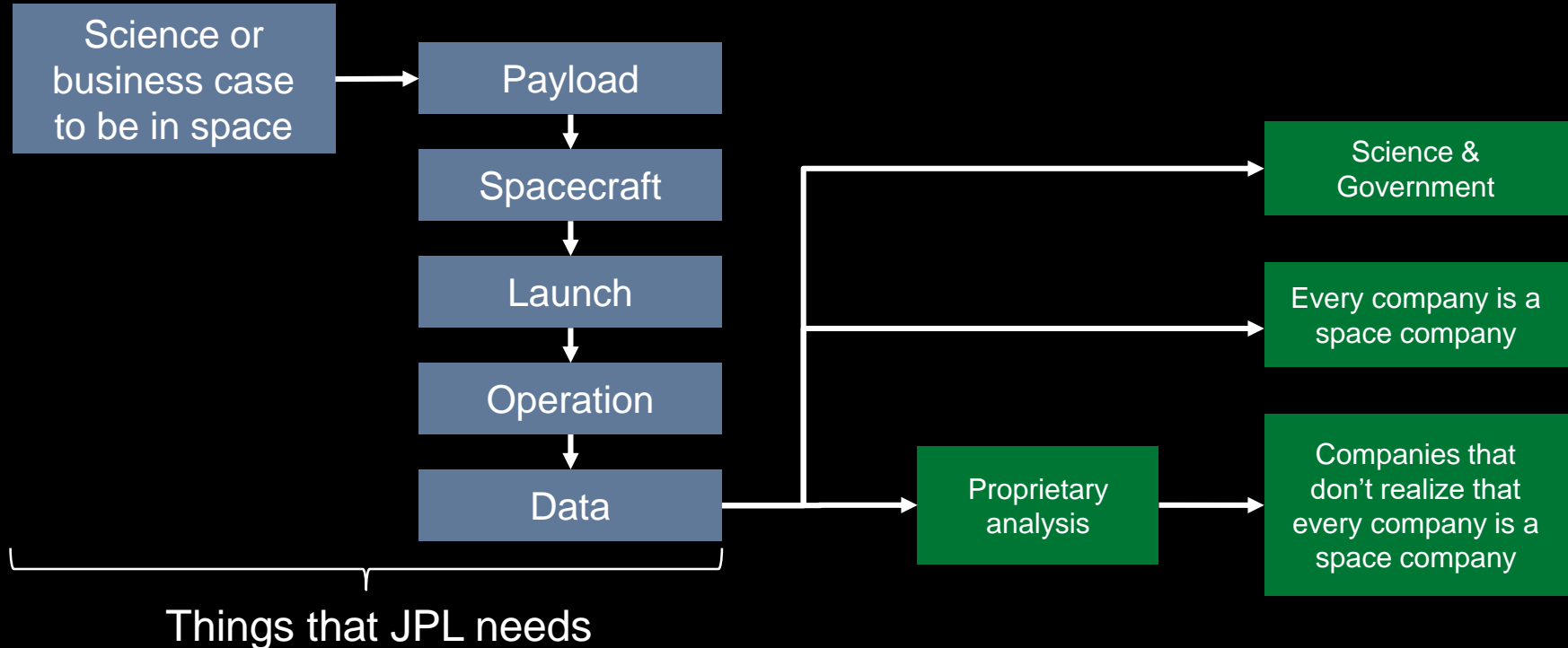
- Near-term outlook for space launch

	Jan 15, 2016 – Today		Today – 2020
	Successful	Failed	Confirmed & Unconfirmed
Launches	59	5	118
LV value [\$M]	\$7,000	\$450	\$7,634
Price/launch [\$M]	\$118	\$90	\$65

- This forecast probably underestimates the future launch manifest
 - Expect total value to increase
 - Expect average price/launch to decrease

Does your business model align with NASA needs?

- There are opportunities all along the value chain
- Space technology firms can (and need to) be viable without NASA





Jet Propulsion Laboratory
California Institute of Technology